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TUBERCULOSIS

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AN OLD MYSTERY

Of all diseases, tuberculosis is probably man's oldest and most puzzling enemy. Ancient skeletons show us that tuberculosis has existed for at least 6,500 years. Before the discovery of the drug streptomycin in 1944, there was little that could be offered except bed rest, a good diet, and hope. Even today, because we know little about why in some persons it flares up, subsides, and later rages again, we say simply that this seems to be due to periods of stress.

Its gallery of victims include such famous people as novelist Robert Louis Stevenson, composer Frederick Chopin, and not only authoresses Charlotte and Emily Bronte, but their entire family. There are others: Mozart, Voltaire, Keats, Balzac, St. Francis of Assisi, Eugene O'Neill. Tuberculosis, in its slow and silent way, worked its will around the earth.

THE PATTERN TODAY

So, today, where are we in our struggle with this age-old threat? Although we don't know all the answers, we are not as puzzled as our ancestors were—either by what causes the disease or how it is transmitted, or what to do about it.

But don't get the idea that TB is now a rare disease. In 1969 there were over 38,000 new cases of active tuberculosis reported, and more than 5,000 persons died from it. Moreover, there are an estimated 20,000,000 Americans who have been infected by the germ that causes tuberculosis, and as a result are at special risk of having this infection progress to active disease.

THE BATTLEGROUND

Unlike our forefathers of 100 years ago, today we stand before a mass of knowledge about tuberculosis. We know it is caused by a germ called the "tubercle bacillus"—that it is transmitted from one person to another, almost always through the air—and that science has given us drugs that are highly effective against it.

Active tuberculosis can be cured with these drugs, but the patient must take these medicines for as long as directed by the doctor. One of these drugs is now used to prevent tuberculous infection from developing into active disease.

ENEMY STRATEGY

Briefly, here is the pattern that the disease usually takes. A person with active tuberculosis coughs or sneezes into the air tiny, moist droplets—each containing one or two tubercle bacilli. These droplets dry out and become small flecks called "droplet nuclei"—light enough to remain floating about in the air similar to the way smoke moves.

The typical setting for infection is a closed room with poor ventilation. If the germs float out into the sunlight, they are quickly killed. In a closed room, another person can breathe in these tiny droplet nuclei. But the body has many natural traps for catching such foreign elements. To infect a person, a droplet nucleus must ride the air deep into the lungs without being stopped. There it becomes imbedded and the germ begins to multiply very slowly.

Germes like those causing tonsillitis multiply in a matter of minutes. The TB germ takes about 18 to 24 hours to reproduce itself just once. The tonsillitis germs cause disease rapidly but die out just as rapidly. The TB germ is never in a hurry—it grows slowly and dies slowly.

Even though the germ starts to multiply, the body immediately sets up a defense. Usually it is strong enough to stop this growth. At this point the person has a primary infection. After most primary infections the disease is stopped right there for the rest of the person's life. This fact is possible because the germ is content just to infect and then to hibernate without ever developing into disease. Strangely enough, the damage done seldom has any effect on the person's physical well-being. Sometimes, though, either the body defenses are not strong enough or the germ is too strong, and disease develops soon after a person becomes infected. This does not occur often, so the greatest danger is the long-term threat of tuberculous infection. Progression of infection to active disease may occur in periods of stress caused by other illnesses or physical or emotional hardship. But often there is no explanation for why sleeping germs of a primary infection from years earlier suddenly spurt into action, causing disease.

THE EYE IN THE STORM

The symptoms of tuberculosis, unfortunately, are mild and seldom noticed, at least during the early stages. This causes many problems, the most

serious of which is postponing early detection and treatment. The signs to look for are loss of weight, loss of strength and pep, irregular appetite, mild fever in normal circumstances, cough, chest pains and a flow of thick mucus called "sputum" brought up from the lungs by coughing.

OUR SPOTTERS

A number of tests are needed for detecting tuberculosis. To begin with, a simple skin test called the Mantoux Tuberculin Test is one of the best. It shows whether or not a person has been infected. If he has, the next step is a chest X-ray, which will reveal disease in the lungs, and show the general stage of the disease, if it is present. If something is found on the X-ray, a sputum sample also is taken and examined in the laboratory to see if TB germs are present.

If an active case of tuberculosis is found, the person becomes the patient, and the proper medicines for his treatment are decided. Sputum samples containing the live germ are tested against a number of medicines to see how effective each one is against the patient's germ. With current methods, this testing takes 3 weeks or less. The results of these tests are given to the doctor attending the patient and he then plans the proper treatment.

THE WEAPONS AND THE WAY TO WIN

Antituberculosis medicines now available make it possible for all patients to recover. Cure takes 18 months to two years of taking medicine because these medicines are only able to kill the germs that are reproducing. When active tuberculosis is present, many germs are multiplying, but others are present in a resting phase. These resting germs make it necessary for treatment to be continued for many months to handle the resting germs when they start to multiply.

Treatment with several medicines is the rule for tuberculosis patients because some germs may be resistant. Isoniazid, streptomycin, para-aminosalicylic acid (PAS) and ethambutol are the four primary medicines used in the treatment of tuberculosis.

Studies have shown that most patients stop spreading tuberculosis soon after they start treatment. As a result, few patients need extended periods of hospitalization, and some don't have to spend any time in the hospital. Because of this important change in the treatment of tuberculosis, health departments are expanding and improving outpatient services so more TB patients can be treated at home.

Tuberculosis treatment is no longer limited to persons who have the disease in its active stage. Treatment with isoniazid for one year is recommended for infected persons to prevent their infection from progressing to active disease. Treatment of tuberculous infection with isoniazid alone

is possible because of the relatively few tuberculosis germs present in an infected person, as contrasted with the hundreds of thousands of germs in a person with active disease.

PROTECTING OTHERS

Since tuberculosis is a communicable disease, people in close association with persons who have active disease should be examined. These people are usually members of the same family, though not always. Statistics show that associates of active cases have a high rate of infection. They should consult their doctors or members of the local health organizations for tuberculin tests and X-rays. Preventive treatment will generally be recommended.

THE CONTINUING WAR ON TB

Today, around 300,000 people in the United States are under medical care or supervision for TB, and more than 70,000 of these have active disease. In recent years there has been renewed interest in battling this ancient enemy of man, and as a result there has been an accelerating decline in the incidence of this disease. But much remains to be done. If no one gets TB from the moment this sentence is read, many people who are already

infected at that moment will live and harbor the disease well into the 21st century.

It is true that “every new case of tuberculosis comes from an old case of tuberculosis.” If this chain of infection is broken between the generations, this great parasite and enemy of man will eventually pass from the earth.

THINGS TO REMEMBER

- TB can be cured—but the earlier the better
- A person can have TB and feel well
- TB is not inherited
- Special climate, rest and food are not important in treatment
- TB is a communicable, airborne disease
- Local health services are available for help with personal or family problems

NOTE: If you would like to have more information about tuberculosis, consult your local health department or tuberculosis association.